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ABSTRACT

A Content Alignment Committee defined the subject matter that beginning teachers who complete the University of Houston-Clear Lake (UHCL) program must understand in order to provide meaningful learning experiences to public school students. The committee met during 1997 to examine content standards in English/language arts, mathematics, and social studies. Each of the three action teams included someone from the School of Education, the UHCL school housing the discipline where the content courses were taught, a community college, and a professional development school. The three teams developed topics or concept statements that included knowledge, central themes, and patterns of thinking specific to the content. The content statements were aligned with national, state, and local standards identified as an appropriate emphasis in the teacher preparation program at the community college, university, or professional development school. This paper describes content alignment project objectives, the project concept and vision statement, the background of teacher education standards, and the project review process. The resulting standards for each of the three areas are included. An appendix presents the University of Houston-Clear Lake Community College Transfer Plans and a list of required courses in each content area. (SM)

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ED 421 469

Content Alignment Project Report

English/Language Arts, Mathematics, and Social Studies

Alignment of Community College, University and Internship Content

N. Mayo

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School of Education
University of Houston - Clear Lake

April 16, 1998

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Introduction

The purpose of the Content Alignment Project committee was to clearly define the subject matter that a beginning teacher who completes the University of Houston-Clear Lake (UHCL) program must understand in order to provide meaningful learning experiences to public school students. This project was a follow-up action following the University of Houston Clear Lake (UHCL) Congress on Teacher Preparation held on April 18, 1997. It was modeled after the National Congress on Teacher Education sponsored by the Association of Teacher Educators in December of 1996, and the Texas Congress on Educator Preparation held in Houston, Texas, in October of 1996. The local congress at UHCL was designed to involve a cross section of those involved in preparing teachers in the UHCL program. The purpose of the Congress was to "foster the shared responsibility for the preparation of future teachers and to discuss directions that could be taken to strengthen this shared responsibility" (UHCL, August 18, 1997).

One of the themes of the Congress was CONTENT. The content session focused on how to best prepare teachers so that they are competent in the knowledge base of public school content areas. The state and national standards for content areas were addressed in break out sessions. The afternoon session brought together participants to discuss and make recommendations. Participants who examined CONTENT concerns made a number of recommendations including that the university must work more closely with community colleges and others to improve students' knowledge of content, and so the Content Alignment Project was started the following fall.

The Content Alignment Committee met during the Fall Semester, 1997 to examine content standards in English/ Language Arts, Mathematics, and Social Studies. Another group had been formed to examine science content so this work was not duplicated. The School of Education, the UHCL school housing the discipline where the content courses are taught, a community college and a professional development school were represented on each of the three content groups, or action teams. A total of twelve people worked on the project. These action team members provided multiple perspectives about content knowledge needed by beginning teachers. The three action teams developed topics or concept statements that included knowledge, central themes and patterns of thinking specific to the content. These content statements were aligned with national, state and local standards and identified as an appropriate emphasis in the teacher preparation program at the community college, university or professional development school (internship).

Content Alignment Project Objectives

Committee objectives were to accomplish the following:

1. Review national and state standards related to curriculum and assessment in an elementary and secondary school content area.

2. Prepare a document describing what a beginning teacher from UHCL will be expected to know to be considered proficient in each content field including:
   - what every elementary teacher should know as general knowledge in the content area,
   - what is expected for elementary teachers who specialize in the field,

- What is expected for secondary teachers who specialize in the field.

3. Develop recommendations for subject matter content to be included in the teacher education curriculum at the community college, university, and field-based experience and internship levels.

4. Disseminate the document with recommendations for discussion and validation at UHCL partnership public schools, community colleges, and university committees, and collect information about any curriculum/course changes related to the content recommendations.

Project Concept and Vision Statement

The participants in the Content Alignment Project discussed their purpose and dimensions of the work. The following statement summarizes expected results of our work.

TO: Assure that teachers are prepared to teach subject matter competently.

IN A WAY THAT:

- Facilitates present and on-going program development and assessment.

- Guides program development so that teacher education students have structured opportunities to learn subject matter.

- Provides a framework for breadth, depth and precision of knowledge in content areas for teacher education students.

- Provides that teacher education students demonstrate the ability to think critically, integrate and evaluate subject matter knowledge.

- Promotes teacher education students' understanding and integrating subject matter areas as part of a system of knowledge.

- Creates a model for instilling ethics, standards and life long learning for teacher education students.

SO THAT:

- Teacher education students and subgroups pass subject area ExCET tests with a 5% improvement annually.

- Beginning teachers can meet their teaching and accountability responsibilities.

Background of Teacher Education Standards

The three content area action teams reviewed national, state and local standards to determine the content requirements for graduates of the UHCL program. These standards provide benchmarks that are widely accepted and lauded as essential for improving teacher and public school education (Behar-Horenstein, L. S., 1994; Kaplan, L. & Edlelfelt, R. A., 1996; Murray, F. B., 1996 & Shannon, 1994).

Accreditation Standards

Standards for teacher education ensure quality graduates of university programs. National accreditation standards have been developed by the National Council for Accreditation for Teacher Education (NCATE). NCATE includes the major professional organizations for preparing teachers as members who participate in establishing standards and reviews. A trained Board of Examiners team reviews the overall quality of the professional education unit including all professional education programs offered by an institution. NCATE redesigned accreditation standards in 1987 to accredit the unit of education as a whole. "After a period of review and analysis in the early 1990s the 1987 standards underwent further refinement, and a new iteration of standards was adopted by NCATE's Executive Board in 1994. These refined standards are referred to as the 1995 standards, because they were first applied to accreditation review beginning in 1995" (NCATE,1995, p. 11).

The standards are organized around three themes related to quality: I. Intellectual vitality, II. Professional community, and III. Professional conscience. Standard I. C. Content Studies for Initial Teacher Preparation (Initial) directly states standards for content knowledge of teacher candidates. "The unit assures that teacher candidates attain academic competence in the content that they plan to teach" (NCATE, 1995, p.16). Indicators used by the Board of Examiners to determine if this standard is met are:

I.C.1 Candidates complete a sequence of courses and/or experiences to develop an understanding of the structure, skills, core concepts, ideas, values, facts, methods of inquiry, and uses of technology for the content they plan to teach.

I.C.2 The guidelines and standards of specialty organizations are used in developing programs in each content area. (NCATE, 1995, p.16)

In addition to Standard I.C., other standards refer to content knowledge of the teacher. "NCATE expects accredited units to exhibit intellectual vitality in their application of the knowledge base. The NCATE standards are designed to encourage units to develop a coherent program of study according to the current and emerging knowledge bases in the respective fields of inquiry (e.g., science and science education). Education units must demonstrate that the knowledge bases are understood by--and can be articulated and applied by--faculty and students alike" (NCATE,1995, p. 11).

Professional Organization Content Area Standards

Each action team also reviewed the national and state professional standards for public school learning in their disciplines. Their review considered if the current university requirements includes content knowledge expected for teachers preparing for elementary or secondary certification.

English Language Arts. The English / Language Arts team used the 1996 standards developed by the International Reading Association (IRA) and the National Council of

Teachers of English (NCTE) (NCTE, 1996). English / Language Arts standards consist of reading, writing, listening, speaking and viewing. The IRA and NCTE were assisted by the Council of Chief State School Officers. The standards were drawn from previous collaborative, works, state standards documents, and the Australian frameworks (*Education Week*, April 12, 1995).

The standards are based on current research, theories of learning and best classroom practice. The national standards document includes the content standards as a general description of what learners know and are able to do. Two other parts of the document discuss professional standards and guidelines for implementing the standards (NCTE, 1994; NCTE, 1996).

Mathematics Standards. Mathematics standards were released in 1989. Mathematics standards focus on students achieving five goals: learning the value of mathematics; becoming confident in their mathematical abilities; becoming mathematical problem-solvers; learning to communicate mathematically; and learning to reason mathematically. The National Council of Teachers of Mathematics (NCTM) which consists of researchers, mathematicians and classroom teachers from all levels of teaching developed the standards. The mathematics standards document divides standards according to grade levels; K-4, 5-8, 9-12. (*Education Week*, April 12, 1995).

The mathematics standards have been widely distributed. NCTM has published extensively about implementation of the standards. These materials include the standards, activities and evaluation standards that help teachers design instruction and assesses student performance (NCTM, 1989; NCTM, 1991).

Social Studies. The social studies area is the most complex because it includes the public school subject areas of history, government or civics, psychology, sociology, and economics. The social studies national standards, released in 1994, were developed by the National Council for the Social Studies (NCSS) in the social-studies-standards project. This task force consisted of college and university professors and administrators, teachers and school administrators. They considered the 1987 standards for social studies and other documents. Social studies teachers, members of education associations, student focus groups and other educators and interested citizens reviewed and commented on the draft copies. "As defined by the task force, social studies is the 'integrated study of social sciences and humanities to promote civic competence.' The primary purpose of social studies, according to the document, is to 'help young people develop the ability to make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world." (Education Week, April 12, 1995, p. 13).

The social studies standards are divided by school levels: early grades, middle grades, and high school. Standards are organized within 10 themes: culture; time, continuity, and change; people places and environments; individual development and identity; individuals, groups, and institutions; power, authority, and governance; production, distribution, and consumption; science, technology, and society; global connections; and civic ideals and practices. Specific standards are further organized by disciplines of civics, world history, United States history, etc. Performance expectations and sample activities are listed for each of the themes. (NCSS, 1994) Additional materials are available from NCSS.

Texas Teacher Proficiencies: Texas Content Area Standards

The state of Texas has established standards for the preparation and professional development of teachers. The seven standards defined as proficiencies are: Learner-Centered Knowledge, Learner-Centered Instruction, Equity in Excellence for all Learners, Learner-Centered Communication and Learner-Centered Professional Development.

Although content knowledge is a part of most of the proficiencies, the first proficiency, Learner-Centered Knowledge, is most related to the task of the Content Alignment committee. This proficiency states, "The teacher possesses and draws on a rich knowledge base of content, pedagogy, and technology to provide relevant and meaningful learning experiences for all students" (Texas Education Agency, 1994, p. 3).

The ExCET examination is a required state test one must pass before achieving certification. It includes a test of professional knowledge and subject matter knowledge of entry level educators. Teachers seeking elementary certification must pass a comprehensive subject matter test that covers subject areas taught in elementary schools. Secondary teachers must pass a test in their area of specialization. The content area committees in this project reviewed the ExCET Preparation Manuals for their specific area for the comprehensive elementary test and for either English Language Arts, Mathematics or Social Studies secondary tests. A study guide lists the framework for the subject area - including the domain (e.g. World Geography, English Literature), statements of competencies, descriptive statements defining the competency, sample test questions, study suggestions and resources. (State Board for Educator Certification, 1996)

Texas Essential Knowledge and Skills (TEKS)

The Texas Essential Knowledge and Skills (TEKS) replaced the former Essential Elements which state public school student proficiencies for subject areas at each grade level (Texas Education Code, ξ 28.002). Public school students must master these proficiencies as measured by the Texas Assessment of Academic Skills (TAAS). The TAAS test will be revised to incorporate the TEKS that include higher level thinking skills to a greater degree which will be more consistent with national standards in the subject areas. The most recent TEKS were down-loaded from the Internet for use by the action teams (TEA). The ExCET and TAAS were designed to be congruent so that teachers can be accountable for the essential knowledge of their students.

University of Houston Clear Lake Standards

As stated in the UHCL Center for Professional Development and Technology Program Approval document, "As early as 1992, the standards subcommittee of the TEA^{3}M Collaborative identified seven primary standards that preservice teachers must achieve. The development of these standards was guided by two sources, the National Association of State Directors of Teacher Education and Certification (1992) document which identified eleven domains for the evaluation of teacher outcomes and by a schema developed by Shulman, Haertel, and Bird (1988) listing five categories. The seven standards were also sent to practicing teachers in the TEA^{3}M Collaborative for validation. It was their assessment that these standards do represent a broad-spectrum of the roles and responsibilities" (University of Houston Clear Lake, 1996).

The development of these seven standards preceded the release of *Learner-Centered Schools for Texas* by the Texas Education Agency in 1994. The seven standards developed at UHCL were aligned with the state proficiencies and proved to be a close match. The seven standards adopted at UHCL are:

Standard 1 Professional Responsibility
Standard 2 Nature of the Learner
Standard 3 Command of the Subject Matter
Standard 4 Curriculum and Instruction
Standard 5 Classroom Management and Organization
Standard 6 Technology
Standard 7 Community and Parental Involvement (School of Education, No Date)

The UHCL standard most related to the task of the Content Alignment Committee is Command of the Subject Matter and the state proficiency is Proficiency 1-Learner-Centered Knowledge. Figure 1 includes a statement of the Command of the Subject Matter standard, the state proficiency and the scoring rubric. The content action teams considered this standard in their alignment of subject matter curriculum.

Content Alignment Project Review Process

The Content Alignment Committee met on October 29, 1997, to review the documents written by each of the action teams. After reviewing the initial purpose statement as a basis for evaluating the report, content action teams met to review the total document and make recommendations. Plans for a follow- up focus group meeting were completed in the afternoon. Recommendations were given to the project facilitator for implementation.

On December 3, 1997, forty-five educators including public school teachers, department heads, community college faculty and university faculty were invited to a two hour focus group meeting. Participants were invited to attend and they received a packet of the content alignment reports for review prior to the meeting. After a general meeting to provide an overview, the educators met with one of the three content teams to critique the reports. The original action team chairs led these meetings and the other three members recorded comments or assisted with clarifying the documents. The interaction was lively with all participants seriously analyzing the documents. As a result, the work groups held additional meetings or sent changes by mail or electronically until the original committees agreed upon the final revisions. The results are included in the following sections. Each of these reports is intended for use by those involved with the content courses for the UHCL teacher education program and can be distributed separately from the main report.

General Recommendations

At the meeting on October 29, 1997, the three content action teams found that they had some recommendations in common for consideration for the teacher preparation program. At this meeting these common recommendations were refined and a rationale added.

1. Recommendation: The Content Alignment Project Committee recommends that UHCL purchase the elementary comprehensive ExCET data disk and secondary content specialization data disks to generate practice tests, and offer practice test sessions prior to or during Internship I at UHCL.

Rationale: To provide preservice teachers the opportunity to better prepare for the ExCET examination.

2. Recommendation: The Content Alignment Project Committee asks for reconsideration of the policy that allows "acceptability" of D's for lower level courses.

Rationale: The current policy states that D is acceptable on a number of lower level courses that cover content included in the Elementary Comprehensive test and content specialization tests such as history and government.

3. Recommendation: At the state level, the Content Alignment Project Committee strongly urges that Texas continue to require that all who are certified to teach in public schools have a bachelor's degree from an accredited institution of higher education.

STANDARD 3-Command of the Subject Matter

The teacher is a compelling communicator who demonstrates an understanding of the subject matter and guides learners to construct knowledge relevant to their own lives. Appreciating the dynamic nature of knowledge, the teacher selects and organizes topics to enable learners to recognize the central themes of the subject matter and patterns of thinking specific to the disciplines from multiple perspectives. By staying abreast of current knowledge and practice, the teacher ensures an environment that will assist the student in moving to a higher level of thinking and an increased understanding of the subject.

Texas Proficiencies for Teachers: Learner-Centered Knowledge
The teacher possesses and draws on a rich knowledge base of content, pedagogy, and technology to provide relevant and meaningful learning experiences for all students (p. 3).

STANDARD 3-Command of the Subject Matter

	Experiential	Application	Integration
1	Demonstrates a familiarity with the content of the selected content field (s) (secondary) or comprehensive general knowledge (elementary) and an understanding of state and national standards.	Plans instruction which demonstrates an accuracy in conceptual understanding and which closely parallels the essential elements (TEKS), and scope and sequence of the district curriculum guide or adopted course textbook.	Creates a learning environment that accurately reflects the content field and provides relevant and meaningful learning experiences for all students.
2	Demonstrates a depth and breadth of content knowledge in selected field(s) (secondary) or comprehensive general knowledge (elementary) at a sufficient level to pass the appropriate ExCET test(s).	Plans instruction which demonstrates an accuracy in conceptual understanding and which consistently makes extensions that go beyond the district or course scope and sequence.	Creates a learning environment that guides learners to construct knowledge relevant to their own lives, to move to higher levels of thinking and to increase their understanding of the subject.
3	Demonstrates a depth and breadth of content knowledge in selected field(s) (secondary) or comprehensive general knowledge (elementary) at a level that exceeds the minimum passing level of the appropriate ExCET test(s).	Plans instruction which demonstrates an accuracy in conceptual understanding, which consistently makes extensions that go beyond the district or course scope and sequence and which demonstrates unit and course planning that recognizes the central themes of the subject matter and patterns of thinking specific to the discipline.	Creates a learning environment that guides learners to construct knowledge relevant to their own lives, to move to higher levels of thinking, and to experience the relationships among and within the central themes of various disciplines while also learning how to learn.

Figure 1: University of Houston - Clear Lake Content Standard

Rationale: New state standards for teacher certification now being developed do not seem to state that one must have a baccalaureate degree before being employed to work with students. Work experience without formal education does not assure a strong knowledge base in the content disciplines taught in public schools.

4. Recommendation: The Content Alignment Project Committee takes the position that the state consider for the future a universal five-year program of education for all public school teachers, in which all prospective teachers would earn a four-year undergraduate bachelor's degree in a content area before pursuing a final or fifth year of education instruction and student teaching or internship. Wages and compensation for public school teachers should be increased in reward for this extended preparation.

Rationale: Meeting both degree requirements and certification requirements, including pedagogy and work in public schools, in 139 credit hours leaves inadequate room in curriculum to address both adequately. The fifth-year model will allow teachers to become competent in both content knowledge and pedagogical knowledge and skills.

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Content Alignment Project
University of Houston—Clear Lake

English / Language Arts Group—Barbara Samuels, Joan Mauldin, Christy Engvall, and Craig White

Standards for teachers K-12

Students preparing for careers in teaching should have opportunities and resources to develop their language skills in ways that help them pursue personal goals and become productive members of society and to develop their instructional abilities in ways that enable their students to enjoy similar opportunities, resources, and abilities. These standards reflect the Standards for the English Language Arts, the Texas Essential Knowledge and Skills for K-12 English/Language Arts, and the English/Language arts in the Examination for the Certification of Educators in Texas (ExCET).

The content recommended in the first two charts of this document represents the English/Language Arts content that it is important for all preservice teachers to know.

Courses required for all elementary certification students:

At the community college:

- English 1301, 1302 English Composition
- 6 hours of sophomore literature
- 3 hours of speech
- 3 hours of Fine Arts which may include Drama

At UHCL:

- COMM 3037 Advanced Writing recommended
- LLLS 4131 Survey of Reading
- LLLS 4434 Language Arts in Elementary Schools
- SILC 4135 Theories of American Pluralism

Students who select English (LITR) or Reading (LLLS) as areas of specialization for elementary certification take a number of other courses in the English/Language Arts. The following chart represents the courses in which a deeper understanding of this content is developed for those preservice teachers whose area of specialization is Literature or Reading.

Following the standards format developed by National Council of Teachers of English and the International Reading Association, the following standards indicate the types of learning in literature and language skills that are necessary for pre-service teachers in grades K-12. The concepts denoted in these standards should be applied appropriately to the grade level concerned. For the preparing teacher, these standards should be realized in two aspects-- understanding and application to their own literacy

(*a*), and knowledge of how to facilitate students' learning (instruction) (*i*)--that are keyed by their respective parenthetical letters to the accompanying graph indicating at what level and in which courses pre-service teachers should learn and master the concept:

Standard 1

Pre-service teachers select and read extensively from various printed sources for personal, cultural, and informational purposes.

* They read in multiple genres and historical periods from American, British, and World literature, both fiction and non-fiction.

* They are prepared to teach age appropriate literature including children's, adolescents', and adults' literature.

* They encourage life-long reading habits, exploring texts beyond minimal classroom expectations.

Standard 2

Pre-service teachers demonstrate knowledge of the reading process at different grade levels.

* They understand reading as a process in which readers actively participate in constructing meaning.

* They demonstrate knowledge of word meaning, a variety of word identification strategies, historical etymology, and an understanding of textual features (e. g., sound-letter correspondence, morphology, sentence structure, context, graphics).

* They demonstrate a variety of strategies of monitoring their own comprehension.

Standard 3

Pre-service teachers apply a wide range of strategies to comprehend, interpret, evaluate, analyze, appreciate, and respond to texts which include a variety of literary techniques, from a variety of genres and media.

* They draw on their prior experience, their interactions with other readers, writers, and viewers, their knowledge of other texts, and the characteristics of particular genres.

* They make social, cultural, and personal connections with literature.

* They understand literary elements, structure, and forms.

* They appreciate the relationship between form and content in the expression of ideas.

* They read silently and aloud.

* They support both aesthetic and informational responses to reading, such as meaningful and relevant experiences, reports, discussions, journals, oral interpretations, and dramatizations.

Standard 4

Pre-service teachers acquire, use, and model an appropriate vocabulary in reading, writing, and speaking and adjust their spoken, written, and visual language to communicate effectively with a variety of audiences and for different purposes.

Standard 5

Pre-service teachers use spoken, written, and visual language for a variety of purposes, including learning, enjoyment, persuasion, appreciation of other cultures, and exchange of information.

* They introduce socially and culturally relevant materials and strategies.

Standard 6

Pre-service teachers recognize the interactive nature of learning.

* They foster the creation of a community of learners in the classroom by reading and discussing texts as a class or in small groups.

* They use electronic technologies to research and discuss professional, academic, and personal interests.

Standard 7

Pre-service teachers learn to use the writing process—prewriting, organizing, drafting, revising, editing, and publishing—to communicate clearly and forcefully.

Standard 8

Pre-service teachers will know how to use a variety of rhetorical patterns, including description, narration, persuasion, classification, and comparison, as well as others that may be required by the Texas testing system.

* They understand how to use and teach syntax.

Standard 9

Pre-service teachers conduct research by generating ideas and questions, and by gathering, evaluating, and synthesizing data from a variety of sources.

* They present their findings in ways that suit their purpose and audience including research papers, videos, graphics, multi-media presentations, etc..

* They use a variety of technological and informational resources (e. g., libraries, databases, computer networks, video) to evaluate, analyze, and produce texts and visual images.

Standard 10

Pre-service teachers learn to comprehend, appreciate, analyze, and evaluate visual and auditory performances and presentations.

Standard 11

Pre-service teachers develop an understanding of and respect for diversity in language use.

* They are aware of patterns and dialects across cultures, ethnic groups, geographic regions, and/or social roles.

* They are aware of the social and linguistic changes that continue to shape the English language.

* They understand that for ESL students, the student's native language serves as a foundation for English language acquisition.

Standard 12

Pre-service teachers develop study skills which can be applied across the curriculum.

* They understand the processes of listening and reading to learn.

* They practice taking notes, and organizing and summarizing spoken or written ideas in different ways such as outlines, timelines, mapping, and diagramming in a coherent form.

Standard 13

Pre-service teachers recognize the interrelationships of reading, writing, listening, speaking, viewing, and representing, and they plan instruction that reflects the interrelated nature of these processes.

Standard 14

Pre-service teachers use a variety of formal and informal methods to assess student needs and monitor student progress in developing language competence.

* They understand the role and the content of standardized and criterion-referenced tests.

* They use teacher conferences, peer response groups, portfolios, response journals, and observations to monitor and assess student learning.

* They use current research to assess student learning.

Preservice teachers with literature or reading as an area of specialization master the following standards:

	AREA OF SPECIALIZATION	
	Literature (Secondary)	**Reading**
Standard 1 Select and read extensively • read in multiple genresand historical periods • teach age appropriate literature • encourage life-long reading habits	LITR 3334 LITR 3631 LITR 4134 LITR 4232 LITR 4234 LITR 4236 LITR 4237 LITR 4533 LITR 4534 LITR 4535	LLLS 4435 LLLS 4532 LLLS 5137 LLLS 5532 LLLS 5533
Standard 2 Knowledge of the reading process • readers actively construct meaning • knowledge of word meaning, word identification strategies, and textual features • monitor their own comprehension	LITR 4031	LLLS 4131 LLLS 4132 LLLS 4133 LLLS 4331 LLLS 5134 LLLS 5135 LLLS 5738 LLLS 6331 LLLS 6735
Standard 3 Strategies to comprehend, interpret, evaluate, appreciate, and respond to texts • draw on prior experience, interactions, knowledge of other texts and genres • connections with own lives • literary elements, structure, forms • relationship between form and content • read silently and aloud • aesthetic and informational responses	LITR 3631 LITR 3731 LITR 4034 LITR 4131 LITR 4233 LITR 4235 LITR 4238 LITR 4332 LITR 4533 LITR 4534	LLLS 4131 LLLS 4434 LLLS 4532 LLLS 5131 LLLS 5134 LLLS 5135 LLLS 5137 LLLS 5534
Standard 4 Appropriate vocabulary, adjust language to communicate effectively	LITR 3731 LITR 4031	LLLS 4434 LLLS 5131

Preservice teachers with literature or reading as an area of specialization master the following standards:

	AREA OF SPECIALIZATION	
	Literature (Secondary)	**Reading**
Standard 5 Socially and culturally relevant materials and strategies	LITR 4233 LITR 4236 LITR 4332 LITR 4537 LITR 4632	LLLS 4434 LLLS 5131 SILC 6030
Standard 6 Language for a variety of purposes	LITR 3731 LITR 4031 LITR 4034 LITR 4533 LITR 4632	INST 6031 LLLS 4434 LLLS 4435 LLLS 4532 LLLS 5131 LLLS 5137 LLLS 5532 LLLS 5533
Standard 7 Writing process	LITR 3731 LITR 4031 LITR 4034 LITR 4131	LLLS 4434 LLLS 5131 LLLS 5635 LLLS 5636
Standard 8 Rhetorical patterns	LITR 4031	LLLS 4434 LLLS 5131 LLLS 5635 LLLS 5636
Standard 9 Conduct research • present findings • use technological and informational resources	LITR 3631 LITR 4031 LITR 4632	EDUC 5232 EDUC 6033 INST 6031
Standard 10 Comprehend, appreciate, analyze, and evaluate spoken performances	LITR 3631 LITR 3731 LITR 4533	LLLS 4434 LLLS 5131
Standard 11 Diversity in language use social and linguistic changes of English language • student's native language as a foundation	LITR 4236 LITR 4332 LITR 4435 LITR 4631 LITR 4632	LLLS 4434 LLLS 5131 SILC 6030

Preservice teachers with literature or reading as an area of specialization master the following standards:

AREA OF SPECIALIZATION

	Literature (Secondary)	**Reading**
Standard 12 Study skills	LITR 4031	LLLS 4132 LLLS 4531 LLLS 5135 LLLS 5531
Standard 13 Interrelationships of reading, writing, listening, speaking, viewing, and representing	LITR 4031	LLLS 4434 LLLS 5131
Standard 14 Assessment of student needs • tests • conferences, peer response journals, and observations	LITR 3731 LITR 4031	LLLS 5736 LLLS 5737 LLLS 6639 LLLS 6732 LLLS 6735

ELEMENTARY CERTIFICATION

All elementary preservice teachers are expected to master the following standards.

a - application in their own reading and writing, listening
i - know how to instruct students

Standard	Comm College	LITR* Courses	COMM 3037	SoE Reading, LA Methods Courses	Intern-ship I & II
Standard 1 Select and read extensively	a soph lit	a		LLLS 4131,4434	
• read in multiple genres and historical periods	a 1302, soph lit	a			
• teach age appropriate literature				a, i	i
• encourage life-long reading habits	a 1302 soph lit	a		a	i
Standard 2 Knowledge of the reading process				LLLS 4131,4434 a, i	i
• readers actively construct meaning				a, i	i
• knowledge of word meaning, word identification strategies, and textual features				a, i	i
• monitor their own comprehension				a, i	i
Standard 3 Strategies to comprehend interpret, evaluate, appreciate, and respond to texts	a 1301,1302 soph lit	a		LLLS 4131,4434 i	i
• draw on prior experience, interactions, knowledge of other texts and genres	a	a		i	i
• connections with own lives	a	a		i	i
• literary elements, structure, forms (continued on next page)	a	a		i	i

*LITR courses taken if English (LITR) is chosen as area of specialization.

Standard	Comm College	LITR* Courses	COMM 3037	SoE Reading, LA Methods Courses	Intern-ship I & II
(Standard 3 continued)					
• relationship between form and content	a	a			i
• read silently and aloud	a	a		i	i
• aesthetic and informational responses	a	a		a, i	i
Standard 4 Appropriate vocabulary, adjust language to communicate effectively	a 1301 1302 soph lit	a	a	LLLS 4434 i	i
Standard 5 Socially and culturally relevant materials and strategies		a		SILC 4135 a, i	i
• encourage literate communities		a		LLLS 4434 a, i	i
• use electronic technologies	a 1301 soph lit			INST 3133 a	i
Standard 6 Language for a variety of purposes	1301,1302 soph lit a	a	a	LLLS 4434 i	i
Standard 7 Writing process	1301 soph lit a		a	LLLS 4434 i	i
Standard 8 Rhetorical patterns	1301 a		a	LLLS 4434 i	i
Standard 9 Conduct research	1301,1302 soph lit a	a	a		
• present findings	a				
• use technological and informational resources	1301,1302 soph lit a			INST 3133 a	i

*LITR courses taken if English (LITR) is chosen as area of specialization.

Standard	Comm College	LITR* Courses	COMM 3037	SoE Reading, LA Methods Courses	Intern-ship I & II
Standard 10 Comprehend, appreciate, analyze, and evaluate spoken performances	speech drama a			LLLS 4434 HUMN 3034 i	
Standard 11 Diversity in language use social and linguistic changes of English language • Student's native language as a foundation	soph lit a			LLLL 4434 a SILC 4135 a	
Standard 12 Study skills					
Standard 13 Interrelationships of reading, writing, listening, speaking, viewing, and representing				LLLS4434 a, i	i
Standard 14 Assessment of student needs • tests • conferences, peer response journals, and observations			 a	LLLS 4131,4434 a a LLLS 4131,4434 a, i	 i i

*LITR courses taken if English (LITR) is chosen as area of specialization.

SECONDARY CERTIFICATION

All secondary preservice teachers are expected to master the following standards.

a - application in their own reading and writing, listening
i - know how to instruct students

Standard	Comm College	LITR* 3631 courses as select-ed (E)	COMM 3037	SoE Reading, LA Methods Courses	Intern-ship I & II
Standard 1 Select and read extensively	a 1301,1302 soph lit	a		LLLS 4131,4132 4532	
• read in multiple genres and historical periods	a 1302, soph lit	a			
• teach age appropriate literature	1302 soph lit			a, i	i
• encourage life-long reading habits	a	a		a	i
Standard 2 Knowledge of the reading process				LLLS 4131, 4132,4635 a, i	i
• readers actively construct meaning				a, i	i
• knowledge of word meaning, word identification strategies, and textual features				a, i	i
• monitor their own comprehension				a, i	i

*LITR courses selected for Secondary Certification in English (36 hours) or English/Language Arts Composite. (48 hours)

*LITR courses taken if English (LITR) is chosen as area of specialization.

Standard	Comm College	LITR* 3631 courses as select-ed (E)	COMM 3037	SoE Reading, LA Methods Courses	Intern-ship I & II
Standard 3				LLLS 4131,4132	
Strategies to comprehend, interpret, evaluate, appreciate, and respond to texts	a 1301,1302 soph lit	a		i	i
• draw on prior experience, interactions, knowledge of other texts and genres	a	a		TCED 4634 i	i
• connections with own lives	a	a		i	i
• literary elements, structure, forms	a	a		i	i
• relationship between form and content	a	a			i
• read silently and aloud	a	a		i	i
• aesthetic and informational responses	a	a		a, i	i
Standard 4 Appropriate vocabulary, adjust language to communicate effectively	a 1301 1302 soph lit	a	a	TCED4634 i	i
Standard 5 Socially and culturally relevant materials and strategies		a		SILC 4135 LLLS 4532 a, i	i
• encourage literate communities		a		a, i	
• use electronic technologies	a 1301	a		INST 3133 a	i
Standard 6 Language for a variety of purposes	1301,1302 soph lit a	a	LITR 4031 a	TCED 4634 i	i
Standard 7 Writing process	1301 a	a	a	TCED 4634 i	i

*LITR courses taken if English (LITR) is chosen as area of specialization.

Standard	Comm College	LITR* 3631 courses as select-ed (E)	COMM 3037	SoE Reading, LA Methods Courses	Intern-ship I & II
Standard 8 Rhetorical patterns	1301 a	a	a	TCED 4634 i	i
Standard 9 Conduct research	1301,1302 soph lit a	a	a		
• present findings	a			i	i
• use technological and informational resources	a		a	INST 3133 i	
Standard 10 Comprehend, appreciate, analyze, and evaluate spoken performances	speech drama a			HUMN 3034 i	i
Standard 11 Diversity in language use social and linguistic changes of English language	soph lit a	a		TCED 4634 LLLS 4331 a	
Student's native language as a foundation				SILC 4135 a	
Standard 12 Study skills				LLLS 4635,4531 a, i	i
Standard 13 Interrelationships of reading, writing, listening, speaking, viewing, and representing		a		LLLS 4135 TCED 4634 a, i	i
Standard 14 Assessment of student needs				TCED 4634 LLLS 4332	
• tests				a	i
• conferences, peer response				a	i
• journals and observations			a	a,i	

*LITR courses taken if English (LITR) is chosen as area of specialization.

Content Alignment Project
University of Houston-Clear Lake

Mathematics Action Team - Sue Brown, Judy Bergman, Debi Deans, Bette Nelson

Overview

Current visions of teaching and learning mathematics are described in such recent publications, as Everybody Counts (National Research Council, 1989), The Curriculum and Evaluation Standards for School Mathematics (National Council of Teachers of Mathematics [NCTM], 1989), Professional Standards for Teaching Mathematics (NCTM,1991), Crossroads for Mathematics: Standards for Introductory College Mathematics Before Calculus (American Mathematical Association of Two-Year Colleges, 1995), and A Call for Change (Mathematics Association of America, 1991). Accomplishing this vision is dependent upon the mathematical preparation of teachers. In Mathematical Preparation of Elementary Teachers: Issues and Recommendations, a publication of the Mathematical Sciences Education Board (1995), all the various mathematics professional communities are urged to make a strong, coordinated, and visible commitment to strengthen the mathematical preparation of elementary teachers.

The content recommended in this document represents the mathematics that is important for preservice teachers to know. The content reflects the Curriculum and Evaluation Standards for School Mathematics, the Texas Essential Knowledge and Skills for K-8 and high school mathematics, as well as the mathematics reflected in the Examination for the Certification of Educators in Texas (ExCET).

Elementary Program

The content competencies for the preparation of elementary teachers are organized into the following strands:

- Higher Order Thinking and Questioning
- Problem Solving
- Mathematical Communication
- Mathematics in Various Contexts
- Number and Numeration Concepts
- Patterns and Relationships
- Mathematical Operations
- Geometry and Spatial Sense
- Measurement
- Statistics and Probability
- Recent Developments and Issues in the Teaching and Learning of Mathematics

Students receiving elementary certification at UHCL complete the following mathematics courses: College Algebra, Structure of Number Systems (Math for Teachers I), Fundamentals of Informal Geometry and Statistical Analysis (Math for Teachers II), and

Methods of Teaching Mathematics at the Elementary Level. In addition, all students complete a three hour internship course in which they spend one day a week in the public schools and a second internship course (student teaching) in which the students spend the entire semester in the public schools.

Table I identifies subskills for each of the content competencies and identifies the courses in which the competencies are addressed. For example, "Use Reasoning /Questioning Skills" is a subskill for the competency "Higher Order Thinking and Questioning." As Table I indicates, that topic is included in College Algebra with a minor emphasis, is a major emphasis in Math for Teachers II, is included in Math for Teacher II as a minor emphasis and receives a major emphasis in the Math Methods Course and the two Internship Courses.

Upon analyzing the alignment between the content competencies and the mathematics courses students take, the committee makes the following recommendations.

1. Recommendation: During Internship I and/or Internship II, each preservice teacher should be afforded the opportunity to experience and/or observe the following pedagogical competencies in mathematics:

   A. The teacher encourages the development of thinking and questioning skills in students.
   B. The teacher facilitates students' understanding of the problem solving process.
   C. The teacher promotes the use of mathematical communication in students.
   D. The teacher recognizes and emphasizes the importance of mathematics in everyday contexts in instruction.
   E. The teacher promotes the use of mathematical communication in students.
   F. The teacher facilitates students' understanding of patterns and relationships.
   G. The teacher enhances students' understanding of operations and computations.
   H. The teacher understands and communicates to students the importance of geometry as a method of exploring and describing the world.
   I. The teacher facilitates students' understanding of measurement concepts.
   J. The teacher facilitates students' understanding of statistics and probability.

   Rationale: To provide preservice teachers the opportunity to implement theory.

2. Recommendation: UHCL purchase the Elementary Comprehensive ExCET Data Disk to generate practice tests.

   Rationale: To provide preservice teachers the opportunity to better prepare for the ExCET.

3. Recommendation: Students need additional exposure to the following competency, "Recent Developments and Issues." This competency should be more formally addressed in the Math Methods course.

   Rationale: Preservice teachers must be knowledgeable of current issues in mathematics education.

4. Recommendation: TAAS information should be included in the Math Methods Course and the Internship courses.

Rationale: UHCL graduates will be teaching in a TAAS environment and should have background knowledge of TAAS objectives and targets.

Table I

Elementary Mathematics Content Competencies

Content Competencies	College Algebra	Math for Teachers I	Math for Teachers II	Math Methods	Internship I & II
Higher Order Thinking and Questioning					
• Use reasoning /questioning skills	2	1	2	2	1
• Encourages the development of thinking and questioning skills in students				2	1
Problem Solving					
• Select appropriate strategies					
• Looks for a pattern		1	2	2	
• Looks at a simpler problem	2	1	2	2	
• Makes a diagram, chart, picture or graph		2	1	2	
• Works backwards		1		2	
• Guesses and checks		1		2	
• Models the problem	2	1		2	
• Estimates/mental solution	2			2	
• Uses technology	1	1			
• Facilitates students' understanding of the problem solving process		2		2	1
Mathematical Communication					
• Understands and uses mathematical terminology	1	1	1	1	1
• Recognizes equivalencies between symbolic, verbal, graphic, and concrete representations	1	2	2	1	2
• Promotes the use of mathematical communication in students				2	1
Mathematics in Various Contexts					
• Recognizes and uses connections within mathematics	2	2	2	2	2
• Recognizes and uses connections between mathematics and other content areas	2	2	2	2	2
• Recognizes and emphasizes the importance of mathematics in everyday contexts in instruction				2	2

KEY: 1 - A major emphasis
2 - Included, minor emphasis
• - Pedagogical competency

Content Competencies	College Algebra	Math for Teachers I	Math for Teachers II	Math Methods	Internship I & II
Number and Numeration Concepts					
• Understands concepts of number and numeration	2	1		2	
• Applies number and numeration concepts to:					
◦ Place value		1		2	
◦ Ordering/Comparing	2	1		2	
◦ Whole number operation		1		2	
◦ Measuring			1	2	
• Promotes students' understanding of number and numeration in real life situations	2	2	2	2	1
Patterns and Relationships					
• Observe and describes patterns in a variety of ways		1	2		
• Uses patterns to predict		1	2		
• Understands the concept of functions	1	2	2		
• Facilitates students' understanding of patterns and relationships				2	1
Mathematical Operations					
• Understands and uses fundamental operations	2	1		2	
• Understands properties	2	1		2	
• Enhances students' understanding of operations and computations				2	1
Geometry and Spatial Sense					
• Understands two and three dimensional shapes and their characteristics			1	2	
• Identifies, classifies and analyzes and compares shapes			1	2	
• Represents two and three different shapes from various perspectives			1		
• Understands and communicates to students the importance of geometry as a method for exploring the world			2	2	1

KEY: 1 - A major emphasis
2 - Included, minor emphasis
• - Pedagogical competency

Content Competencies	College Algebra	Math for Teachers I	Math for Teachers II	Math Methods	Internship I & II
Measurement					
• Chooses appropriate standard or non-standard unit and method			1		
• Assesses accuracy and recognizes variation	2	2	1		
• Converts within a measurement		2	1		
• Facilitates students' understanding of measurement concepts				2	1
Statistics and Probability					
• Collects, organizes and interprets data			1		
• Constructs and interprets charts and graphs			1		
• Understands basic probability concepts			1		
• Draws conclusions and makes decisions in everyday situations			1		
• Facilitates students' understanding of statistics and probability				2	1
Recent Developments and Issues					
The teacher is familiar with:					
• Changes in instructional emphasis				1	
• Changes in evaluation practices				2	1
• Applications of technology in the classroom	1	2		2	

KEY: 1 - A major emphasis
2 - Included, minor emphasis
• - Pedagogical competency

Secondary Program

The content competencies for the preparation of secondary teachers are organized into the following strands:

- Concepts of Algebra
- Functions and Their Graphs
- Polynomial and Rational Functions
- Systems of Equations and Inequalities
- Exponential and Logarithmic Functions
- Analytic Geometry
- Trigonometry
- Limits
- Derivatives
- Integrals
- Complex Numbers
- Mathematics of Finance
- Geometry
- Algebraic Structure
- Counting Techniques
- Recurrence Equations
- Graphs
- Matrices
- Transformation Geometry
- Logic and Proof
- Set Theory
- Relations
- Functions
- Probability and Statistics
- Foundations of Mathematics Education

The following are the required mathematics courses secondary mathematics certification students take at UHCL:

MATH 3034: Algebra Through Technology
MATH 3035: Euclidean and Non-Euclidean Geometry
MATH 3131: Linear Algebra
MATH 4434: Probability

In addition, students may transfer 12 lower level hours from the community college, but courses below the level of calculus will not apply toward certification. In the School of Education, secondary certification students complete a course in methods of teaching mathematics at the secondary level. All secondary students also complete a three hour internship course in which they spend one day a week in the public schools for a

semester and a second internship course (student teaching) in which the students spend the entire semester in the public schools.

Table II identifies subskills for each of the content competencies and in which courses the competencies are addressed. For example, "Algebra of Real Numbers" is a subskill for the competency "Concepts of Algebra." As Table II indicates, that topic is included in College Algebra. Upon analysis of the alignment between the content competencies and the mathematics courses students take, the committee makes the following recommendations.

1. Recommendation: Require MATH 3331: Discrete Mathematics for student pursuing secondary mathematics certification.

   Rationale: ExCET competencies on graphs, logic, proofs, relations, and set theory are not currently addressed in the four required courses.

2. Recommendation: Modules for Mathematics of Finance and Algebraic Structures be developed and students pursuing secondary mathematics certification will include the completed modules in the Internship I portfolio.

   Rationale: Completion of these modules will provide the background content for students to answer Mathematics of Finance and Algebraic Structure questions on the ExCET.

3. Recommendation: Polar Form of Complex Numbers using technology should be addressed in Calculus II or Analytic Geometry.

   Rationale: Polar Form of Complex Numbers is not covered in the required mathematics courses taken by UHCL students.

4. Recommendation: TAAS and End-of-Course Examination information should be included in the Secondary Math Methods Course and the Internship courses.

   Rationale: UHCL graduates will be teaching in a TAAS and End-of-Course Examination environment and should have background knowledge of TAAS and End-of-Course Examination objectives and targets.

5. Recommendation: The Secondary Mathematics Methods Course should be field based.

   Rationale: Secondary Mathematics certification students do not have sufficient field experiences in a mathematics class prior to the Internship Courses.

Conclusions and Implications

The Mathematics Action Team composed of a mathematics faculty member, a mathematics education faculty member, a community college instructor and a public school teacher began the task of writing and building consensus for this set of guidelines regarding the mathematics studied by preservice elementary and secondary teachers. This document is the product of a consensus-building process involving mathematics faculty at both the University of Houston-Clear Lake and community colleges as well as area public schools. These guidelines offer insights into the teaching and learning of mathematics that preservice teachers should experience.

Table II

Secondary Mathematics Content Competencies

Math Courses	College Algebra	Trig	Cal I	Cal II	Linear Alg.	Alg.thru Tech.	Euclidian/ non Geom.	Prob/ Stat	Methods Intern I&II
Content Concepts									
I. Concepts of Algebra									
• Algebra of Real Numbers	X								X
• Solving Linear Equations and Inequalities	X								X
• Solving Absolute Value Linear Equations and Inequalities	X								
• Factoring and Completing the Square	X								X
• Solving Quadratic Equations and Inequalities	X								
• Solving Absolute Value Quadratic Equations and Inequalities	X								
• Solving Radical Equations	X								
• Solving Equations of Quadratic Type	X								
II. Functions and Their Graphs									
• Functions	X					X			X
• Graph Sketching and Properties of Graphs	X					X			X
• Increasing and Decreasing Functions	X					X			
• Composition of Functions	X					X			
• Inverse Functions and Their Graphs	X					X			
III. Polynomial and Rational Functions									
• Linear Functions	X					X			X
• Linear Functions as Mathematical Models	X					X			X
• Quadratic Functions	X					X			
• Quadratic Functions as Mathematical Models	X					X			
• Polynomial Functions	X					X			
• Integral and Rational Roots	X					X			
• Approximation of Roots	X					X			X
• Rational Functions	X					X			
• Asymptotes	X					X			

KEY: X = Content component of this course

Math Courses	College Algebra	Trig	Cal I	Cal II	Linear Alg.	Alg.thru Tech.	Eulidian/ non Geom.	Prob/ Stat	Methods Intern I&II
Content Concepts									
IV. Systems of Equations and Inequalities									
• Systems of Linear Equations and Inequalities	X					X			X
• Solving Systems of Linear Equations Using Matrices	X				X				X
• Cramer's Rule					X				
• Applications of Systems of Linear Equations	X				X	X			
• Systems Containing Nonlinear Equations	X				X	X			
• Linear Programming					X				
V. Exponential and Logarithmic Functions									
• Exponential Functions	X		X		X	X			
• The Exponential Function with Base	X		X		X	X			
• Exponential Functions as Mathematical Models	X		X		X	X			
• Logarithms and Their Properties	X		X		X	X			
• Logarithmic Function	X		X		X	X			
• Logarithmic Functions as Mathematical Models	X		X		X	X			
VI. Analytic Geometry									
• Lines	X	X			X				
• Circles	X	X				X			
• Ellipses		X				X			
• Parabolas		X			X	X			
• Hyperbolas		X				X			
• Translation and Rotation of Coordinate Axes		X				X			
• General Conics		X				X			

KEY: X = Content component of this course

Math Courses	College Algebra	Trig	Cal I	Cal II	Linear Alg.	Alg.thru Tech.	Eulidian/ non Geom.	Prob/ Stat	Methods Intern I&II
Content Concepts									
VII. Trigonometry									
• Trigonometry of Triangles Including the Law of Sines and Cosines		X							
• Trigonometric Functions		X							
• Graphs of Trigonometric Functions		X							
• Trigonometric Identities		X							
• Inverse Trigonometric Functions		X							
• Trigonometric Equations		X							
• Polar Coordinates		X							
• Trigonometric Form and nth Roots of Complex Numbers		X							
• Vectors		X							
VIII. Limits									
• Limits of Functions			X						
• Formal Definition of Limits			X						
• Properties of Limits			X						
• Continuity			X						
IX. Derivatives									
• The Derivative of a Function			X						
• Rules for Calculating Derivatives			X						
• The Chain Rule			X						
• Related Rates			X						
• Applications of Derivatives			X						
X. Integrals									
• Riemann Sums				X					
• Properties of the Integral				X					
• Fundamental Theorem of Calculus				X					
• Arc Length, Area, Surface Area, and Volume of Revolution				X					
• Other Applications of Integrals				X					

KEY: X = Content component of this course

Math Courses	College Algebra	Trig	Cal I	Cal II	Linear Alg.	Alg.thru Tech.	Eulidian/ non Geom.	Prob/ Stat	Methods Intern I&II
Content Concepts									
XI. Complex Numbers									
• Complex Numbers	X								
• Conjugate and Absolute Value of Complex Numbers	X								
• Subtraction and addition of Complex Numbers	X								
• Geometric Representation of Complex Numbers	X								
• Polar Form of Complex Numbers		X							
• Products an Quotients of Complex Numbers	X								
• Powers and Roots of Complex Numbers	X								
XII. Mathematics of Finance									
• Simple Interest	X								
• Future Value of Simple Interest									
• Add-On Interest									
• Compound Interest	X								
• APR for Add-On Interest									
• Annuities and Mortgages									
• Amortization Schedules									
XIII. Geometry									
• Incidence Postulates and Theorems							X		
• Angles							X		X
• Congruent Triangles							X		X
• Triangle Inequalities							X		
• Parallels							X		X
• Similarity							X		X
• Right Triangles	X						X		X
• Circles							X		X
• Area and Volume							X		X
• Coordinate Geometry							X		X
XIV. Algebraic Structure									
• Binary Operations									
• Groups and Subgroups									
• Isomorphism									
• Rings and Fields									

KEY: X = Content component of this course

Math Courses	College Algebra	Trig	Cal I	Cal II	Linear Alg.	Alg.thru Tech.	Eulidian/ non Geom.	Prob/ Stat	Methods Intern I&II
Content Concepts									
XV. Counting Techniques									
• Elementary Counting Techniques								X	
• Pigeonhole Principle								X	
• Multiplication Principle								X	
• Addition Principle								X	
• Binomial Theorem								X	
• Pascal's Triangle								X	
• Inclusion-Exclusion Principle								X	
XVI. Recurrence Equations									
• Recurrence Equations				X					
• Arithmetic Sequences and Series				X					
• Geometry Sequences and Series				X					
• First-Order Linear Recurrence Equations				X					
XVII. Graphs									
• Basic Concepts of Graph Theory									
• Paths and Circuits									
• Directed Graphs (Diagraphs) and their Representations									
• Trees									
XVIII. Matrices									
• Matrix Algebra					X				
• Matrices and Graphs					X				
• Matrices and Systems of Linear Equations					X				
• Inverse and Elementary Matrices					X				
• Determinants and Their Properties					X				
• Matrices and Transformations					X				
XIX. Transformation Geometry									
• Transformation of the Plane							X		
• Reflections, Rotations, Translations, and Glide Reflections							X		X
• Symmetry							X		X
• Size Transformations							X		X
• Similarity Transformations							X		X

KEY: X = Content component of this course

Math Courses	College Algebra	Trig	Cal I	Cal II	Linear Alg.	Alg.thru Tech.	Eulidian/ non Geom.	Prob/ Stat	Methods Intern I&II
Content Concepts									
XX. Logic and Proof									
• Inductive and Deductive Reasoning									X
• Propositions and Connectives									
• Quantifiers									
• Valid Arguments									
• Mathematical Proofs									
XXI. Set Theory									
• Sets, Set Relation and Set Operations									
• Infinite Collections of Sets									
• Power Sets									
• Cartesian Products									
• Inductively Defined Sets									
• Proof by Induction									
XXII. Relations									
• Relations									
• Compositions of Relations									
• Equivalence Relations									
• Equivalence Classes									
• Partitions									
• Order Relations									
XXIII. Functions									
• Functions as Relations					X				
• One-to-One and Onto Functions					X				
• Composition of Functions					X				
• Inverse Functions					X				
XXIV. Probability and Statistics									
• Using Calculators and Computers in Statistics								X	X
• Graphical Methods of Data Analysis								X	
• Numerical Methods of Data Analysis								X	
• Basic Concepts of Probability								X	
• Probability Distributions								X	
• Sampling Distributions								X	
• Methods of Data Analysis								X	

KEY: X = Content component of this course

Math Courses	College Algebra	Trig	Cal I	Cal II	Linear Alg.	Alg.thru Tech.	Eulidian/ non Geom.	Prob/ Stat	Methods Intern I&II
Content Concepts									
XXV. Foundations of Mathematics Education									
• NCTM Standards for Curriculum and Evaluation						X	X		X
• TEA Standards for Curriculum and Evaluation						X	X		X
• TEKS Essential Elements for Secondary Mathematics						X	X		X
• The Role of Technology in Teaching Mathematics						X	X		X

KEY: X = Content component of this course

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Content Alignment Project
University of Houston - Clear Lake
Social Studies

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Definition of Social Studies:

Social studies is the integrated study of the social sciences and humanities to promote civic competence. Social Studies draws upon an array of social science disciplines that include but is not limited to history, geography, sociology, psychology, economics, government, anthropology, archaeology, political science, philosophy, law.

Overview of process for selecting standards to align curriculum:

After a review of the Texas Essential Knowledge and Skills (TEKS) for Social Studies and the Elementary Comprehensive and Social Studies (Secondary) Composite ExCET exams, SSAT decided that the general intent of the TEKS and ExCET exams were summarized concisely by the ten National Themes of Social Studies and their performance expectations developed by the National Council for Social studies Education (1994). That is, the National Themes comprise both the content of TEKS and ExCET exams. The anticipation of pending changes, in the near future, of the ExCET exam based on the recently published TEKS further supported the selection of the National Themes of Social Studies as a standard for this curriculum alignment. Importantly, public school teachers are held accountable for social studies content that are aligned with the National Themes of Social Studies throughout the certification process and teaching.
SSAT utilized the National Themes of Social Studies and their performance expectations as the standards for determining curriculum alignment between community colleges' and UHCL's courses. Both the required and recommended social studies courses for elementary and secondary education students who complete their degree at UHCL were examined for alignment.

Below are abbreviated explanations of the ten themes as described in the National Themes of Social Studies document (1994).

1. Culture. The study of culture prepares students to answer questions such as: What are the common characteristics of different cultures? How do belief systems, such as religion or political ideals, influence others parts of the culture? How does the culture change to accommodate different ideas and beliefs? What does language tell us about the culture?

2. Time, Continuity, and Change. Human beings seek to understand their historical roots and to locate themselves in time. Knowing how to read and reconstruct the past allows one to develop a historical perspective and to answer questions such as: Who am I? What happened in the past? How am I connected to the future? Why does our personal sense of relatedness to the past change?

3. People, Places, and Environments. The study of people, places and human-environment interactions assist students as they create their spatial views and geographic perspectives of the world beyond their personal locations. Students need the knowledge, skills, and understanding to answer questions such as: Where are things located? Why are they located where they are? What do we mean by "region"? How do landforms change? What implications do these changes have for people?

4. Individual Development and Identity. Personal identity is shaped by one's culture, by groups, and by institutional influences. Students should consider such questions as: How do people learn? Why do people behave as they do? What influences how people learn, perceive, and grow? How do people meet their basic needs in a variety of contexts? How do individuals develop from youth to adulthood?

5. Individuals, Groups, and Institutions. Institutions such as schools, churches, families, government agencies, and the courts play an integral role in people's lives. It is important that students learn how institutions are formed, what controls and influences them, how they influence individuals and culture, and how they are maintained or changed. Students may address questions such as: What is the role of institutions in this and other societies? How am I influenced by institutions? How do institutions change? What is my role in institutional change?

6. Power, Authority, and Governance. Understanding the historical development of structures or power, authority, and governance and their evolving functions in contemporary U. S. society and other parts of the world is essential for developing civic competence. In exploring this theme, students confront questions such as: What is power? What forms does it take? Who holds it? How is it gained, used and justified? What is legitimate authority? How are governments created, structured, maintained, and changed? How can individual rights be protected within the context of majority rule?

7. Production, Distribution, and Consumption. Because people have wants that often exceed the resources available to them, a variety of ways have evolved to answer such questions as: What is produced? How is production organized? How are goods and services distributed? What is the most effective allocation of the factors of production(land, labor, capital, and management)?

8. Science, Technology, and Society. Modern life as we know it would be impossible without technology and the science that supports it. But technology brings with it many questions: Is new technology always better than the old? What can we learn from the past about how new technologies result in broader social change, some of which is unanticipated? How can we cope with the ever-increasing pace of change? How can we preserve our fundamental values and beliefs in the midst of technological change?

9. Global Connections. The realities of global interdependence require understanding the increasingly important and diverse global connections among world societies and the frequent tension between national interests and global priorities. Students will need to be able to address such international issues as health care, the environment, human rights, economic competition and interdependence, age-old ethnic enemies, and political and military alliances.

10. Civic Ideals and Practices. An understanding of civic ideals and practices of citizenship is critical to full participation in society and is a central purpose of social studies. Students confront such questions as: What is civic participation and how can I be involved? How has the meaning of citizenship evolved? What is the balance between rights and responsibilities? What is the role of the citizen in the community and the nation, and as a member of the world community. How can I make a positive difference? (National Council for the Social Studies, 1994).

Aligning Standards and Required Social Studies Courses at Community Colleges and UHCL

Following the selection of the National Themes of Social Studies as the standard for curriculum alignment, SSAT thoroughly examined social studies course offerings at community colleges and the University of Houston-Clear Lake. The required courses for elementary and secondary students with a social studies concentration typically are more general and offered within

the freshmen and sophomore curriculum of the community colleges. However, the upper level courses of the discipline that comprise the social studies concentration, offered by the University of Houston-Clear Lake, are generally more focused to allow flexibility for designing and scheduling degree plans of students. Listed below are the required social studies curriculum for elementary and secondary education degrees that are offered by the community colleges. Following the list of the required curriculum are Tables I, II and III with an explanation of the tables. The primary purpose of Tables I, II and III is to graphically organize the required courses located at community colleges, UHCL and public schools that address the National Themes of Social Studies.

Elementary Education Required Social Studies courses offered by Community Colleges
HIST 1301- American History I
HIST 1302- American History II
HIST 2301 or 2302 or 2303- Texas History (6 hrs. of Am. HIST.; 3 of these hrs. may be in Texas History)**
GOVT 2301- Government I
GOVT 2302- Government II (6 hrs. required)**
GEOG 1303- World Geography **
**These General Education Requirements may be fulfilled by approved upper-level equivalents at UHCL

Secondary Education Required Social Studies Courses offered by Community College
HIST 1301- American History I
HIST 1302- American History II
HIST 2301 or 2302 or 2303- Texas History (6 hrs. of American History required; three of these hours may be in Texas History)
GOVT 2301 - Government I
GOVT 2302 - Government II
GEOG 1303- World Geography**
**These General Education Requirements may be fulfilled by approved upper-level equivalents at UHCL.

Required Social Studies Course Offerings at Community Colleges and UHCL Curriculum Alignment Tables I and II

In Tables I and II, the first column represents the ten Themes of Social Studies previously defined. The next three columns represent required social studies courses or areas offered at community colleges and UHCL in the School of Education (SOE) and School of Humanities and Human Sciences (HSH) that address each specific theme. The last column represents Internship I and Internship II pre-service experiences for grades K-12 (Elementary and Secondary Schools) in which the ten National Themes of Social Studies are emphasized and addressed.

In each cell of the tables, courses or areas that fully address specific Social Studies themes are listed. An * indicates courses or areas that partially address specific themes. Social Studies Themes that are not addressed by any course are represented by an empty cell. (See Community Colleges' or UHCL's catalogs for course descriptions.)

Elementary Required Social Studies Courses
at Community Colleges and UHCL
Curriculum Alignment
TABLE I

*Indicates courses or areas that partially address theme

Ten Themes of Social Studies	Community Colleges Required Social Studies courses	UHCL Social Studies Areas in HSH	UHCL Required Social Studies Courses in SOE	Internship I and II K-8 grades that emphasize Social Studies Themes/TEKS
1. Culture	GEOG 1203	History Sociology Anthropology Humanities Multi-Cultural Studies	GEOG 3137 SILC 4135	K-3 and 6th
2. Time, Continuity and Change	HIST 1301 HIST 1302	History		K-8
3. People, Places and Environments	GEOG 1303		GEOG 3137	K-8
4. Individual Development and Identity		Anthropology Psychology Humanities History*	EDUC 4130	K-3 and 6th
5. Individuals, Groups, and Institutions	GOVT 2301* GOVT 2302*	Sociology, History, Anthropology, Psychology, School Psychology, Government		K-3, 5, 6 and 8th
6. Power, Authority, and Governance	HIST 1301 HIST 1302 GOVT 2301 GOVT 2302	History, Philosophy, Government		4, 5, 7, and 8th

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7. Production, Distribution, and Consumption	GEOG 1303*	Economic History*	GEOG 3137*	K-8
8. Science, Technology, and Society	GEOG 1303*	History* Economics* Government* Humanities* Natural Sciences* Physical Sciences*	GEOG 3137*	K-8
9. Global Connections	GEOG 1303	Economics History*	GEOG 3137	K-8 with special emphasis in 3 and 6
10. Civic Ideals and Practices	HIST 1301* HIST 1302* GOVT 2301 GOVT 2302	History Government Anthropology Philosophy Multi-Cultural Studies	SILC 4135*	K-8

Required Elementary Interdisciplinary Degree Courses at Community Colleges and UHCL Curriculum Alignment
TABLE II

Ten Themes of Social Studies	Community Colleges	UHCL Content Courses	*Teaching Internship
1. Culture		Global Geography History	K-3, 6
2. Time, Continuity and Change	HIST 1301 HIST 1302 GOVT 2302	History	K-8
3. People, Places and Environments	GEOG 1303	Global Geography	K-8
4. Individual Development and Identity		Ed. Psych	K-3, 6
5. Individuals, Groups, and Institutions	GOVT 2301 GOVT 2302		K-3, 6
6. Power, Authority, and Governance	HIST 1301 HIST 1302 GOVT 2301 GOVT 2302		4,5,7,& 8
7. Production, Distribution, and Consumption	GEOG 1303	Global Geography History	K-8
8. Science, Technology, and Society			K-8
9. Global Connections	GEOG 1301	Global Geography History	K-8 (3 & 6)
10. Civic Ideals and Practices	HIST 1301 HIST 1302 GOVT 2301 GOVT 2302	History	K-8

*TEKS themes emphasized

Required Secondary Social Studies Courses
at Community Colleges and UHCL
Curriculum Alignment
TABLE III

*Indicates courses or areas that partially address theme

Ten Themes of Social Studies	Community Colleges Required Social Studies courses	UHCL Required Social Studies Areas in HSH	UHCL Required Social Studies Courses in SOE	Internship I, II 6-12 grades that emphasize S. S. Themes/ TEKS
1. Culture	GEOG 1203	History Sociology Anthropology Humanities Multi-Cultural Studies	GEOG 3137 SILC 4135	6, 9, 10
2. Time, Continuity and Change	HIST 1301 HIST 1302	History		6-12
3. People, Places and Environments	GEOG 1303		GEOG 3137	6-12, special emphasis in 9 or 10
4. Individual Development and Identity		Anthropology Psychology Humanities History*	EDUC 4130*	6, 9, 10, special emphasis in 11 or 12
5. Individuals, Groups, and Institutions	GOVT 2301* GOVT 2302*	Sociology, History, Anthropology, Psychology, School Psychology, Government		6-12, special emphasis in 11 or 12
6. Power, Authority, and Governance	HIST 1301 HIST 1302 GOVT 2301 GOVT 2302	History, Philosophy, Government		7, 8, 11 special emphasis in 12
7. Production, Distribution, and Consumption	GEOG 1303*	Economic History*	GEOG 3137*	6-12, special emphasis in 12

8. Science, Technology, and Society	GEOG 1303*	History* Economics* Government* Humanities* Natural Sciences* Physical Sciences*	GEOG 3137*	6-12, special emphasis in 9 or 10, 12
9. Global Connections	GEOG 1303	Economics History*	GEOG 3137	6-12, special emphasis in 9, 10 and 12
10. Civic Ideals and Practices	HIST 1301* HIST 1302* GOVT 2301 GOVT 2302	History Government Anthropology Philosophy Multi-Cultural Studies	SILC 4135*	6-12

Recommended Social Studies Course Offerings at Community Colleges and UHCL

In Tables IV and V, the first column represents the ten Themes of Social Studies previously defined. The next three columns represent **recommendations by this committee** for social studies courses or areas offered at community colleges, at UHCL in the School of Humanities and Human Sciences (HSH) and at UHCL in the School of Education (SOE) that address each specific theme. The last column represents the K-12 grades (Elementary - Secondary Schools) during Internship I and Internship II pre-service experiences in which the ten National Themes of Social Studies are emphasized and addressed.

In each cell of the tables, courses or areas that fully address specific Social Studies themes are listed. An * indicates courses or areas that partially address specific themes. Social Studies Themes that are not addressed by any course are represented by an empty cell. (See Community Colleges' or UHCL's catalogs for course descriptions.)

Recommended Elementary Social Studies Courses at Community Colleges and UHCL
Curriculum Alignment
TABLE IV

*Indicates courses or areas that partially address theme

Ten Themes of Social Studies	Community Colleges Recommended Social Studies courses	UHCL Recommended Social Studies Areas in HSH	UHCL Recommended Social Studies Courses in SOE	Internship I and II K-8 grades - emphasize S. S. Themes/TEKS
1. Culture	HISTORY 2311 HISTORY 2312	History 3330,3331,3333,3334,3731, 4033,4033, 4036, 4131,4137,4333 Sociology Anthropology Humanities Multi-Cultural	GEOG 4132 GEOG 4030* GEOG 4031* GEOG 4032* GEOG 4131*	K-3 and 6th
2. Time, Continuity and Change	HISTORY 2311 HISTORY 2312	ALL History COURSES		K-8
3. People, Places and Environments	HISTORY 2311 HISTORY 2312 GEOGRAPHY 1301	HISTORY 3330,4931	GEOG 4132 GEOG 4030* GEOG 4031* GEOG 4032*	K-8
4. Individual Development and Identity	PSYCHOLOGY 2301,2306,2308, 2314,2316,2317, 2319, 2321 SOCIOLOGY 1306,2301,2306	Anthropology Psychology Humanities ALL History particularly HIST 3334,4033,4034,4036,4238,4330,4438		K-3 and 6th
5. Individuals, Groups, and Institutions	HISTORY 2311 HISTORY 2312 PSYCHOLOGY 2301, 2306,2308, 2314,2316,2317, 2319, 2321 SOCIOLOGY 1306,2301,2306	Sociology, All History, Anthropology, Psychology, School Psychology, Government		K-3, 5, 6 and 8th
6. Power, Authority, and Governance	HISTORY 2311 HISTORY 2312 PSYCHOLOGY 2317, 2319, 2321 SOCIOLOGY 1306,2301,2306, 2336	All History, Philosophy, Government		4, 5, 7, and 8th

7. Production, Distribution, and Consumption	ECONOMICS 2301 ECONOMICS 2302 SOCIOLOGY 2319, 2336	Economic All History		K-8
8. Science, Technology, and Society	HISTORY 2311 HISTORY 2312 GEOGRAPHY 1301 ECONOMICS 2301 ECONOMICS 2302 PSYCHOLOGY 2317, 2319, 2321 SOCIOLOGY 1301,1306	History 4134,4234,4235,4334,4832 Economics* Government* Humanities* Natural Sciences* Physical Sciences*		K-8
9. Global Connections	ECONOMICS 2301 ECONOMICS 2302 SOCIOLOGY 2319	Economics History 3330,3331,3332, 3731,4033,4035, 4131,4132,4134, 4135,4136,4136, 4137,4234,4235, 4333,4334,4336, 4338,4438,4832	GEOG 4132 GEOG 4030* GEOG 4031* GEOG 4032*	K-8 with special emphasis in 3 and 6
10. Civic Ideals and Practices	HISTORY 2311 HISTORY 2312 SOCIOLOGY 2319, 2336	History334,3731,4033,4036,4130,4131, 4132,4133,4134,4135,4136,4234,4235,4236,4237,4238,4330,4334,4336,4338,4438,4832 Government Anthropology Philosophy Multi-Cultural Studies		K-8

Recommended Secondary Social Studies Courses at Community Colleges and UHCL
Curriculum Alignment
Table V

*Indicates courses or areas that partially address theme

Ten Themes of Social Studies	Community Colleges Recommended Social Studies courses	UHCL Recommended Social Studies Areas in Schools other than SOE	UHCL Required and Recommended Social Studies Courses in SOE	Internship I and II 6-12 grades - emphasize S. S. Themes/TEKS
1. Culture	HISTORY 2311 HISTORY 2312	History 3330,3331,3333, 3334,3731, 4033,4033, 4036, 4131,4137,4333 Sociology Anthropology Humanities Multi-Cultural Studies	GEOG 4132 GEOG 4030* GEOG 4031* GEOG 4032* GEOG 4131*	6, 9, 10
2. Time, Continuity and Change	HISTORY 2311 HISTORY 2312	ALL History COURSES		6-12
3. People, Places and Environments	HISTORY 2311 HISTORY 2312 GEOGRAPHY 1301	HISTORY 3330,4931	GEOG 4132 GEOG 4030* GEOG 4031* GEOG 4032*	6-12, special emphasis in 9 or 10
4. Individual Development and Identity	PSYCHOLOGY 2301,2306,2308, 2314,2316,2317, 2319, 2321 SOCIOLOGY 1306,2301,2306	Anthropology Psychology Humanities ALL History particularly HIST 3334,4033,4034, 4036,4238,4330, 4438		6, 9, 10, special emphasis in 11 or 12
5. Individuals, Groups, and Institutions	HISTORY 2311 HISTORY 2312 PSYCHOLOGY 2301, 2306,2308, 2314,2316,2317, 2319, 2321 SOCIOLOGY 1306,2301,2306	Sociology, All History, Anthropology, Psychology, School Psychology, Government		6-12, special emphasis in 11 or 12
6. Power, Authority, and Governance		All History, Philosophy, Government		7, 8, 11 special emphasis in 12

7. Production, Distribution, and Consumption	ECONOMICS 2301 ECONOMICS 2302 SOCIOLOGY 2319, 2336	Economic All History		6-12, special emphasis in 12
8. Science, Technology, and Society	HISTORY 2311 HISTORY 2312 GEOGRAPHY 1301 ECONOMICS 2301 ECONOMICS 2302 PSYCHOLOGY 2317, 2319, 2321 SOCIOLOGY 1301,1306	History 4134,4234,4235, 4334,4832 Economics* Government* Humanities* Natural Sciences* Physical Sciences*		6-12, special emphasis in 9 or 10, 12
9. Global Connections	ECONOMICS 2301 ECONOMICS 2302 SOCIOLOGY 2319	Economics History 3330,3331,3332, 3731,4033,4035, 4131,4132,4134, 4135,4136,4136, 4137,4234,4235, 4333,4334,4336, 4338,4438,4832	GEOG 4132 GEOG 4030* GEOG 4031* GEOG 4032*	6-12, special emphasis in 9, 10 and 12
10. Civic Ideals and Practices	HISTORY 2311 HISTORY 2312 SOCIOLOGY 2319, 2336	History 334,3731, 4033,4036,4130, 4131,4132,4133, 4134,4135,4136, 4234,4235,4236, 4237,4238,4330, 4334,4336,4338, 4438,4832 Government Anthropology Philosophy Multi-Cultural Studies		6-12

Social Studies Curriculum Alignment Committee Recommendations for Improving Social Studies Education

1. Increase required social studies content hours to address more thoroughly all National Themes/TEKS standards and ExCET exam.

2. Advise pre-service teachers to broaden their repertoire of social studies content courses.

3. Administer the Social Studies TEKS survey to K-12, Community College and University teachers.(Brock, 1997).

4. Endorse Middle School certification.

5. Discuss with content faculty the feasibility of providing an ExCET review session for preservice teachers.

6. Develop modules or mini-courses to address weak areas based on Pre-ExCET exam results.

7. Continue improving communications between community college and UHCL faculties to coordinate and improve the preparation of pre-service teachers.

Social Studies Curriculum Alignment Committee Recommendations for Improving Elementary Interdisciplinary Degree Education

1. Increase required social studies hours to address all National Themes.

2. Reconsider acceptable grade levels for required social studies courses.

3. Five year teacher preparation program (baccalaureate degree + professional program).

4. Advise pre-service teachers to broaden their repertoire of social studies courses.

5. Administer the Social Studies TEKS survey.

APPENDIX

University of Houston - Clear Lake
Community College Transfer Plans

(The UHCL Catalog list required courses in each content area)

1997-1998
rev. 8/97; 3/98
UHCL-EDUC

Transfer Plan to University of Houston-Clear Lake
INTERDISCIPLINARY STUDIES
with Elementary Certification

(B.S. at UHCL; A.A. / A.S. at Community College)

Core Curriculum Requirements:

3 ENGL 1301 - Composition I **(6 hrs. Comp. & 6 hrs. Lit. required. 6 hrs. must be "C" or better, 3 hrs. of which must be in Composition. 3 hrs. of "C-" & 3 hrs. of "D" are acceptable.)**

3 ENGL 1302 - Composition II **

May also choose from: ENGL 1303, 1304, 2307, 2308, 2311, 2314 or 2315.

3 ENGL literature (sophomore level) **

3 ENGL literature (sophomore level) **

May choose any two literature courses: ENGL 2322, 2323, 2326, 2327, 2328, 2331, 2332, 2333, 2334, 2336, 2340, 2341, 2342, 2343, 2352, 2353, 2354, 2374 or any approved LITR course at UHCL.

3 HIST 1301 - American History I **(6 hrs. required. 3 hrs. must be "C-" or better. 3 hrs. of "D" are acceptable.)**

3 HIST 1302 - American History II,
HIST 2301 **or** 2302 **or** 2303 - Texas History **

Six hours of American History required; three of these hours may be in Texas History.

3 GOVT 2301 - Government I **(6 hrs. required; 3 hrs. must be "C-" or better. 3 hrs. of "D" is acceptable.)**

3 GOVT 2302 - Government II

3 MATH 1314 - College Algebra (or higher) **(Grade of "D" or better is acceptable)**

3 Speech - Public Speaking *(Group and Interpersonal Communications are NOT acceptable.)*

May choose from: SPCH 1311, 1315, 1321, 1342, 2341, 2335, 2336 **(Grade of "D" or better is acceptable.)**

3 Fine Arts (survey) ** **(Grade of "C-" or better is acceptable.)**

May choose from: ARTS 1301, 1303, 1304; DANC 2303; DRAM 1310, 2360, 2361, 2363, 2366, 2367; HUMA 1301, 1302; MUSI 1306, 1307, 1308, 1309, 1310, 1350.

3-4 Biological Science with lab ** **(Grade in 1 Science Course with a lab must be a "C-" or better)**

May choose from: BIOL 1308, 1309, 1406, 1407, 1408, 1409, 1411, 1413, 1424, 2401, 2402, 2404, 2406, 2416, 2420, 2421, 2428, 2471; *ESCI 1413 From Lee College Only.*

3-4 Earth or Physical Science with lab ** **(Grade in 1 Science Course with a lab must be a "C-" or better)**

May choose from: CHEM 1305, 1307, 1405, 1407, 1408, 1409, 1411, 1412, 1413, 1414, 1419, 2401, 2423, 2425, 2427, 2471; ESCI 1413; GEOL 1103/ 1303; GEOL 1104/ 1304, GEOL 1345, 1401, 1403, 1404, 1405, 2415, 2430; PHYS 1305, 1401, 1402, 1405, 1407, 1411, 2405, 2425, 2426, 2427.

3 Computer Literacy(or demonstrated proficiency, self-determined) **(Grade of "D" or better is acceptable.)**

Must be hands-on computer literacy course, including word processing, database and spreadsheet applications.

May choose from: CSCI 1400 (Alvin CC); CSCI 1310, 1410 (Brazosport College); CSCI 1300, COSC 1301, or INFS 1310 (College of the Mainland); COSC 1401 (Formerly COSC 1407), CSCI 2405 (Galveston College); CSCI 1341, COSC 1407 (H.C.C.); CSCI 1306 (Formerly DATP 1306), CSCI 1307 (Formerly DATP 1318) (Lee College); CSCI 1401 (North Harris Montgomery CC); CSCI 1321, 2311, BUSI 1375 (San Jacinto College); CSCT 1301, 1401 (Wharton).

3 GEOG 1303 - World Geography ** **(Grade must be "C-" or better.)**

3 Math 1335 - Math for Elementary Teachers / Foundations of Math I ** **(Grade must be "C-" or better.)**

(Math 1336 is acceptable from Brazosport College Only.)

3 P.E. for Elementary Teachers **(Grade of "D" or better is acceptable.)**

51-53 Hours

May choose from: PHED 1331, 1332, CHID 1390 (College of the Mainland only); or ECED 1200 (Alvin CC only, with 1 hour PHED elective).

Additional Required Courses for the Associate Degree: _____

_____

Notes:

( ) Outlines minimum grade requirements for CORE COURSES.

** These General Education Requirements may be fulfilled by approved upper-level equivalents at UHCL.

√ Not all courses are offered at all Community Colleges. Check with your counselor for specific courses on your campus.

√ **In order to meet the UHCL admission requirements of 54 hours with grades of "C" or better, students may complete additional coursework at the lower level. Students should contact the School of Education at UHCL about additional lower-level coursework that may apply toward the bachelor's degree.**

√ Students are encouraged to attend a Transfer Seminar (281) 283-2515 or a Group Advising and Information Session (281) 283-3600 during the semester prior to enrollment at UH-Clear Lake.

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UNIVERSITY OF HOUSTON-CLEAR LAKE - SCHOOL OF EDUCATION

BACHELOR OF SCIENCE in INTERDISCIPLINARY STUDIES (0479)

with Elementary Certification

1997-98 CATALOG

School of Education Degree Requirements:

- A total of 139 semester hours of applicable college credit. No more than 18 semester hours of previously earned lower-level credit may have been taken by corresponsdence, extension or CLEP.
- At least 54 semester hours of upper-level work. Correspondence, extension or CLEP credit cannot be used to fulfill this requirement.
- At least 30 hours of the degree program, including 12 hours of courses in the major, must be taken in residence at UHCL.
- A cumulative GPA of 2.000 on course work completed at UHCL with grades of "C" or better on at least 30 hours of resident upper-level work. Grades of "C-" and below can not be applied toward the 30 hours of resident upper-level work.
- Remain continuously enrolled (complete at least one course in a 12 month period) or meet requirements of a later catalog.
- Complete the degree within seven years (total combined years at community college and UHCL under the same catalog) or meet requirements of a later catalog.

• **Specialization/Emphasis - 36 hours**

Students must select one specialization from group 1 and one or two emphasis areas from group 2.

Group 1- Specialization (18-24 hours)

Bilingual* (1-8) • 24 hrs
Early Childhood* (PreK-6) • 24 hrs
Generic Special Ed.* (PreK-12) • 24 hrs
Reading** (1-8) • 18 hrs.

* combine with 1 emphasis area (12 hrs.)
** combine with 2 emphasis areas (9 hrs. ea)

Group 2 - Emphasis Area (12-18 hrs.)

Art • 12/9 hrs.
Biology • 12/9 hrs.
Earth Science*** • 12/9 hrs.
English • 12/9 hrs.
Geography • 12/9 hrs.
History • 12/9 hrs.
Health*** • 12/9 hrs.
Life/Earth M/S Science • 12/9 hrs.
Mathematics • 12/9 hrs.
Physical Science • 12/9 hrs.
Social Studies • 12/9 hrs.
(Hist, Govt, Geog, Econ)

*** limited course offerings

• **Prerequisites To Professional Development/Teacher Education - 6 hours**

EDUC 4130 - Theories of Educational Psychology (F/Sp/Su)
SILC 4135 - Theories of American Pluralism (F/Sp/Su)
TASP Test (Texas Academic Skills Program Test) All students seeking teacher certification must take and pass the TASP, even if they are considered TASP exempt.
ABC Workshop

• **Certification - 21 hours**

INST 3133 - Computers Use in Classrooms (F/Sp/Su)
LLLS 4131 - Survey of Reading (F/Sp/Su)
SPED 4030 - Survey of Exceptionalities (F/Sp/Su)
MATH 3037 - Foundations of Informal Geometry (F/Sp)
HUMN 3034 - Arts and the Child (F/Sp/Su)
EDUC 4131 - Introduction to Assessment (F/Sp/Su)
LLLS 4434 - Language Arts in the Elementary School (F/Sp)

• **Professional Development - 24 hours** (Courses offered fall and spring only)

EDUC 4132 - Professional Seminar
At least one methods course must be taken with Internship I
TCED 4231 - Social Studies Methods in the Elementary School
TCED 4232 - Science Methods in the Elementary School
TCED 4233 - Math Methods in the Elementary School
Must Be Taken Semester Immediately Preceding Final Semester
TCED 4738 - Pre-Service Internship I (Every Wednesday in the field.)
Final Semester
TCED 4798 - Pre-Service Internship II (Everyday in the field)

• **Passing scores on the ExCET exams**

36 Specialization/Emphasis hours + 6 Prerequisite hours + 21 Certification hours + 24 Professional Development hours = 87 Total Program hours

School of Education Advising Office (281) 283-3600 or 283-3615
Academic Advisers: Holly Kincaid, Linda Smith, Kathy Wigtil and Leslie Hunt
E-mail address: education@cl.uh.edu
http://www.cl.uh.edu

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Transfer Plan to University of Houston-Clear Lake

SECONDARY CERTIFICATION

must accompany a Bachelor of Science or Bachelor of Arts Transfer Plan

(B.A. or B.S.in an academic major with Secondary Certification at UHCL; A.A / A.S. at Community College)

Core curriculum courses for a Bachelors Degree in an academic major must also be met.

Core Curriculum Requirements:

3 ENGL 1301 - Composition I (6 hrs. Comp. & 6 hrs. Lit. required. 9 hrs must be "C-" or better. 3 hrs. of "D" is acceptable.)

3 ENGL 1302 - Composition II**

May also choose from: ENGL 1303, 1304, 2307, 2308, 2311, 2314 or 2315.

3 ENGL literature (sophomore level) **

3 ENGL literature (sophomore level) **

May choose any two literature courses: ENGL 2322, 2323, 2326, 2327, 2328, 2331, 2332, 2333, 2334, 2336, 2340, 2341, 2342, 2343, 2352, 2353, 2354, 2374 or any approved LITR course at UHCL.

3 HIST 1301 - American History I (6 hrs required; 3 hrs. must be "C-" or better. 3 hrs. of "D" are acceptable.)

3 HIST 1302 - American History II,

HIST 2301 or 2302 or 2303 - Texas History**

Six hours of American History required; three of these hours may be in Texas History.

3 GOVT 2301 - Government I (6 hrs. required; 3 hrs. must be "C-" or better. 3 hrs. of "D" is acceptable.)

3 GOVT 2302 - Government II

3 MATH 1314 - College Algebra (or higher) (Grade of "D" or better is acceptable.)

3 Speech - Public Speaking *(Group and Interpersonal Communications are NOT accepted.)*

May choose from: SPCH 1311, 1315, 1321, 1342, 2341, 2335, 2336 (Grade of "D" or better is acceptable.)

3 Fine Arts (survey) ** (Grade of "C-" or better is acceptable.)

May choose from: ARTS 1301, 1303, 1304; DANC 2303; DRAM 1310, 2360, 2361, 2363, 2366, 2367; HUMA 1301, 1302; MUSI 1306, 1307, 1308, 1309, 1310, 1350.

3-4 Biological Science with lab ** (Grade in 1 Science Course with a lab must be a "C-" or better)

May choose from: BIOL 1308, 1309, 1406, 1407, 1408, 1409, 1411, 1413, 1424, 2401, 2402, 2404, 2406, 2416, 2420, 2421, 2428, 2471.

3-4 Earth or Physical Science with lab ** (Grade in 1 Science Course with a lab must be a "C-" or better)

May choose from: CHEM 1305, 1307, 1405, 1407, 1408, 1409, 1411, 1412, 1413, 1414, 1419, 2401, 2423, 2425, 2427, 2471; ESCI 1413; GEOL 1103/ 1303; GEOL 1104/ 1304, GEOL 1345, 1401, 1403, 1404, 1405, 2415, 2430; PHYS 1305, 1401, 1402, 1405, 1407, 1411, 2405, 2425, 2426, 2427.

3 Computer Literacy (or demonstrated proficiency, self-determined) (Grade of "D" or better is acceptable.)

Must be hands-on computer literacy course, including word processing, database and spreadsheet applications.

May choose from: CSCI 1400 (Alvin CC) ;CSCI 1310, 1410 (Brazosport College); CSCI 1300, COSC 1301, or INFS 1310 (College of the Mainland); COSC 1401 (Formerly COSC 1407), CSCI 2405 (Galveston College); CSCI 1341, COSC 1407 (H.C.C.); CSCI 1306 (Formerly DATP 1306), CSCI 1307 (Formerly DATP 1318) (Lee College); CSCI 1401 (North Harris Montgomery CC); CSCI 1321, 2311, BUSI 1375 (San Jacinto College); CSCT 1301, 1401 (Wharton).

3 GEOG 1303 - World Geography ** (Grade must be "C-" or better.)

45-47 Hours

Additional Required Courses for the Associate Degree: _____

_____

Notes:

( ) Outlines minimum grade requirements for CORE COURSES.

** These General Education Requirements may be fulfilled by approved upper-level equivalents at UHCL.

√ Not all courses are offered at all Community Colleges. Check with your counselor for specific courses on your campus.

√ In order to meet the UHCL admission requirements of 84 hours with grades of "C" or better, students may complete additional coursework at the lower level. Students should contact the School of Education at UHCL about additional lower-level coursework that may apply toward the bachelor's degree.

√ Students are encouraged to attend a Transfer Seminar (281) 283-2515 or a Group Advising and Information Session (281) 283-3600 during the semester prior to enrollment at UH-Clear Lake.

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UNIVERSITY OF HOUSTON-CLEAR LAKE • SCHOOL OF EDUCATION
Secondary Certification

1997-98 CATALOG

NOTE: Students seeking secondary certification must pursue a bachelor's degree in one of the three schools at UHCL that corresponds to their content field. In addition to the Transfer Plan for for Secondary Certification, students should obtain a Transfer Plan for their selected major, and obtain academic advising from BOTH their degree area AND the School of Education.

• Content - 48 hours, Choose Option 1, 2, or 4

Option 1 • Single field of 36 hours and related area of 12 hours
Biology
Chemistry
English
Life/Earth MS Science
Mathematics
Physical Science

Option 2 - Two fields of 24 hours each

Art	History
Biology	Life/Earth MS Science
Chemistry	Mathematics
Comp. Info Systems	Physics
Earth Science	Physical Science
English	Psychology
Generic Special Ed	Reading
Geography	Sociology
Government	

Option 4 - Composite field of 48 hours
English/Language Arts Composite:
English, Reading, Journalism and Speech
Science Composite:
Biol., Chem., Physics and Earth Science
Social Studies Composite:
History, Govt., Geog. and Economics

• Prerequisites to Professional Development/Teacher Education - 6 hours
EDUC 4130 - Theories of Educational Psychology F/Sp/Su
SILC 4135 - Theories of American Pluralism F/Sp/Su
TASP Test (Texas Academic Skills Program Test) All students seeking teacher certification must take and pass the TASP, even if they are considered TASP exempt.
ABC Workshop

• Certification - 12 hours
INST 3133 - Computers Use in Classrooms F/Sp/Su
SPED 4030 - Survey of Exceptionalities F/Sp/Su
LLLS 4635 - Content Reading and Study Skills F/Sp/Su
EDUC 4131 (4931) - Introduction to Assessment F/Sp/Su

• Professional Development - 18 hours • (Offered fall and spring only)
EDUC 4132 - Professional Seminar
Choose one methods course:
TCED 4631 - Secondary Social Studies Methods (Spring only)
TCED 4632 - Secondary Science Methods (Spring only)
TCED 4633 - Secondary Mathematics Methods (Fall only)
TCED 4634 - Secondary Eng./Lang. Arts Methods (Fall only)
Must Be Taken Semester Immediately Preceding Final Semester
TCED 4738 - Pre-Service Internship I (Every Wed. in the field)
Final Semester (Fall or Spring)
TCED 4798 - Pre-Service Internship II (Everyday in the field)

• Passing scores on the ExCET exams

48 Content hours + 6 Prerequisite hours + 12 Certification hours + 18 Professional Development hours
= 84 Total Program hours

School of Education Advising Office (281) 283-3600 or 283-3615
Academic Advisors: Holly Kincaid, Kathy Wigtil and Linda Smith
E-mail address: education@cl.uh.edu
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